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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,681	02/18/2004	Jin Yong Kim	2658-0316P	8546
2292	7590	10/10/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			CHU, KIM KWOK	
			ART UNIT	PAPER NUMBER
			2627	

DATE MAILED: 10/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/779,681	KIM, JIN YONG	
	Examiner Kim-Kwok CHU	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on Pre-Amendment filed on 7/21/2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-27 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 18 February 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. 09/334,894.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____ .   | 6) <input type="checkbox"/> Other: _____ .                        |

***Claim Objections***

1. Claim 2 is objected to because of the following informalities:

(a) in Claim 2, line 2, the term "first and second substrates" requires an antecedent basis in the independent Claim 1;

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

*(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.*

3. Claims 1-14, 19-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (U.S. Patent 6,392,979) in view of Seong et al. (U.S. Patent 6,449,241).

4. Yamamoto teaches an optical recording medium very similar to that of the present invention as in Claims 1-12. For example, Yamamoto teaches the following:

(a) With respect to Claim 1, the optical recording medium 55 suitable for recording/reproducing information by

irradiating a laser beam at a wavelength between 395~425 nm onto a recording surface of the optical recording medium (Fig. 4; column 6, lines 31-33), the laser beam being incident from the substrate side of the optical recording medium 55 through an objective lens 52 having a numerical aperture of 0.62~0.68 (Fig. 4; column 6, line 53, column 9, lines 60-64; the numerical aperture range is set within the range 0.6 to 0.7 depends on the storage capacity), the optical recording medium 55 comprising at least one substrate and at least one recording surface (Fig. 4), a substrate layer in the recording medium 55 (Fig. 4), a recording material layer in the recording medium 55 (Fig. 4), and a capacity of the recording medium is greater than 13.8 Gbytes per one recording surface (Fig. 1; column 9, lines 61-63).

However, Yamamoto does not teach that the medium's substrate having a thickness greater than 0.2 mm and a total thickness of the optical recording medium is substantially 1.2 mm.

Seong teaches that the medium's substrate having a thickness greater than 0.2 mm and a total thickness of the optical recording medium is substantially 1.2 mm (Figs 5 and 6; column 5, table 2).

Yamamoto discloses a HD-DVD in his optical pickup apparatus. Although Yamamoto does not specify the thicknesses

of different layers of his high density recording medium, it would have been obvious to one of ordinary skill in the art to use Seong's HD-DVD, because it has a substrate thickness and total thickness as required by a standard HD-DVD specification similar to Yamamoto's.

(b) With respect to Claim 2, Yamamoto does not teach a reflective film formed between first and second substrates of the optical recording medium.

Seong teaches that the medium's reflective film 63 formed between first and second substrates 61, 61' of the optical recording medium (Fig. 6; column 5, lines 21-25).

Yamamoto discloses a HD-DVD in his optical pickup apparatus. Although Yamamoto does not specify a reflective film in his high density recording medium, it would have been obvious to one of ordinary skill in the art to use Seong's HD-DVD, because it has a reflective film as required by a standard HD-DVD specification similar to Yamamoto's.

(c) With respect to Claim 3, Yamamoto does not teach a recording material layer formed between the reflective film and the second substrate.

Seong teaches that a recording material layer 61a' formed between the reflective film 63' and the second substrate 61' (Fig. 6; column 5, lines 21-33).

Yamamoto discloses a HD-DVD in his optical pickup apparatus. Although Yamamoto does not specify the various layers formed in his high density recording medium, it would have been obvious to one of ordinary skill in the art to use Seong's HD-DVD, because it has a recording layer formed between a reflective layer and a second substrate as required by a standard HD-DVD specification similar to Yamamoto's.

(d) With respect to Claims 4 and 5, Yamamoto does not teach the following: a first substrate of the optical recording medium has a pit pattern on a surface thereof; and a second substrate is formed over the surface of the first substrate; a reflective film formed between the first and second substrate.

Seong teaches that a first substrate 51 of the optical recording medium has a pit pattern on a surface thereof; and a second substrate 59 is formed over the surface of the first substrate; a reflective film 53 formed between the first and second substrate 51, 59 (Fig. 5).

Yamamoto discloses a conventional HD-DVD in his optical pickup apparatus. Although Yamamoto does not specify the various layers formed in the high density recording medium, it would have been obvious to one of ordinary skill in the art to use Seong's HD-DVD having a layer structure as cited by the Applicant, because Seong teaches a HD-DVD where the above

layers are designed under a HD-DVD standard similar to Yamamoto's.

(e) With respect to Claim 6, Yamamoto does not teach a first substrate; a second substrate; and a third substrate formed over the first substrate such that the second substrate is formed over a first surface of the first substrate and the third substrate is formed over a second surface, opposite the first surface, of the first substrate.

Seong teaches a first substrate 89; a second substrate 81; and a third substrate 91 formed over the first substrate 81 such that the second substrate 81 is formed over a first surface of the first substrate 89 and the third substrate 91 is formed over a second surface, opposite the first surface, of the first substrate 89 (Fig. 8).

Yamamoto discloses a conventional HD-DVD in his optical pickup apparatus. Although Yamamoto does not specify the various layers formed in the high density recording medium, it would have been obvious to one of ordinary skill in the art to use Seong's HD-DVD having a layer structure as cited by the Applicant, because Seong teaches a HD-DVD where the above layers are designed under a HD-DVD standard similar to Yamamoto's.

(f) With respect to Claims 7-12, Yamamoto does not teach the following:

- (i) as in claim 7, the third substrate has a same thickness as the second substrate;
- (ii) as in claim 8, the second substrate has a first pit pattern, and the third substrate has a second pit pattern.
- (iii) as in claim 9, the first substrate has a first pit pattern on the first surface thereof and a second pit pattern on the second surface thereof.
- (iv) as in claim 10, a first reflective film formed between the first and second substrates; and a second reflective film formed between the first and third substrates.
- (v) as in claim 11, a first recording material layer formed between the first reflective film and the second substrate; and a second recording material layer formed between the second reflective film and the third substrate.
- (vi) as in claim 12, a total thickness of the first substrate, the first reflective film, the second substrate, the second reflective film, and the third substrate substantially equals 1.2 mm.

Seong teaches the following:

- (i) the third substrate 91 has a same thickness D1 as the second substrate 81 (Fig. 8);
- (ii) the second substrate 81 has a first pit pattern 81a, and the third substrate 91 has a second pit pattern 91a (Fig. 8);

(iii) the first substrate 89 has a first pit pattern 81a on the first surface thereof and a second pit pattern 89a on the second surface thereof (Fig. 8);

(iv) a first reflective film 83 formed between the first and second substrates; and a second reflective film 95 formed between the first and third substrates (Fig. 8);

(v) a first recording material layer 81a formed between the first reflective film 83 and the second substrate 81; and a second recording material layer 91a formed between the second reflective film 95 and the third substrate 91 (Fig. 8).

(vi) a total thickness of the first substrate, the first reflective film, the second substrate, the second reflective film, and the third substrate substantially equals 1.2 mm (Fig. 8; column 5, table 2).

Yamamoto discloses a conventional HD-DVD in his optical pickup apparatus. Although Yamamoto does not specify the various layers formed in the high density recording medium, it would have been obvious to one of ordinary skill in the art to use Seong's HD-DVD having a layer structure as cited by the Applicant, because Seong teaches a HD-DVD where the above layers are designed under a HD-DVD standard similar to Yamamoto's.

5. Method claim 13 is drawn to the method of using the corresponding apparatus claimed in claim 1. Therefore method claim 13 correspond to apparatus claim 1 and is rejected for the same reasons of obviousness as used above.

6. Claim 14 has limitations similar to those treated in the above rejection, and is met by the references as discussed above

7. Claim 18 has limitations similar to those treated in the above rejection, and is met by the references as discussed above

8. Claims 19-25 has limitations similar to those treated in the above rejection, and is met by the references as discussed above

9. Claims 15-17, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (U.S. Patent 6,392,979) in view of Seong et al. (U.S. Patent 6,449,241) and Applicant's admitted prior art as disclosed in his parent patent US 6,345,034.

10. Yamamoto et al. in view of Seong et al. teach an optical recording medium very similar to that of the present invention as in Claims 15-17. However, both Yamamoto and Seong do not teach the following:

(i) as in Claim 15, numerical aperture control means for controlling the numerical aperture of the objective lens into 0.35 to 0.40, for recording a second recording medium with a substrate thickness of approximately 0.6 mm;

(ii) as in Claim 16, the numerical aperture control means controls the numerical aperture of the objective lens into about 0.24, thereby recording and reproducing a third recording medium with a substrate thickness of approximately 1.2 mm;

(iii) as in Claim 17, numerical aperture control means for controlling the numerical aperture of the objective lens into any one of 0.35 to 0.40 and about 0.24, thereby selectively recording and reproducing a second recording medium

with a substrate thickness of approximately 0.6 mm and a third recording medium with a substrate thickness of approximately 1.2 mm.

Applicant's admitted prior art as disclosed in his parent patent US 6,345,034 teaches the following:

(i) numerical aperture control means for controlling the numerical aperture of the objective lens into 0.35 to 0.40, for recording a second recording medium with a substrate thickness of approximately 0.6 mm (column 6, lines 40-67, column 7, lines 1-19; table 1);

(ii) the numerical aperture control means controls the numerical aperture of the objective lens into about 0.24, thereby recording and reproducing a third recording medium with a substrate thickness of approximately 1.2 mm (column 6, lines 40-67, column 7, lines 1-19; table 1); and

(iii) numerical aperture control means for controlling the numerical aperture of the objective lens into any one of 0.35 to 0.40 and about 0.24, thereby selectively recording and reproducing a second recording medium with a substrate thickness of approximately 0.6 mm and a third recording medium with a substrate thickness of approximately 1.2 mm (column 6, lines 40-67, column 7, lines 1-19; table 1).

The admitted various numerical apertures with respective to the thicknesses of the media as disclosed in Applicant's specification are designed for a standard HD-DVD. And it would have been obvious to one of ordinary skill in the art to use the admitted numerical apertures as taught in table 1 of the specification because it is the required numerical apertures for focusing a light beam on a standard HD-DVD.

11. Claims 26 and 27 have limitations similar to those treated in the above rejection, and are met by the references as discussed above

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Watanabe et al. (5,838,646) is pertinent because Watanabe teaches an optical disc having specified thickness with respect to the numerical aperture of an objective lens.

13. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kim CHU whose telephone number is (571) 272-7585 between 9:30 am to 6:00 pm, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch, can be reached on (57) 272-7589.

The fax number for the organization where this application or proceeding is assigned is (571) 273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9191 (toll free).

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